

## **Graduation Project Proposal**

Biomedical engineering can mean a lot of different things to a lot of different people. For some, it may be a lucrative profession. For others, a difficult field of study. And still others, a completely mysterious complicated-sounding thing. But to me, it is a chance to make a difference. To help inspire hope in those who didn't think they had any left through medicines and medical devices. As of yet, it is what I want to study, to do with my life. Consequently, I plan to perform a project related to medicine.

For my research/thesis, I propose to study the impact of running (and related factors such as gait, nutrition, and sleep) on bone health. To coincide with this concept, my planned hands-on work will be to volunteer at some sort of medical center. Unfortunately, my application and inquiries at Chestnut Hill and Abington Hospitals have been declined due to lack of availability—currently I am hoping to work out an arrangement with a physical therapy office or possibly one of the school district nurses' offices. Ideally I would like to work with younger patients as my thesis will be focusing on high-school age female track athletes, but I am open to any medical professionals and any patients if need be. After all, everyone deserves help and care!

Because my proposed hands-on activity is not an “event” per say, I would not have many products related to it—however, I do hope to acquire personal interviews with the professionals I am volunteering for and some patients if possible. In this way, I would have statistical and qualitative evidence to support my thesis and research on running's impact on the body, along with (hopefully) some specifics on bones. If by chance I cannot work in a physical therapy center, then my interviews would still prove useful in providing additional background on how the body works and basic medical treatment.

The main factor in implementing and completing my project is time. Since I am on the track team, my time after school on the weekdays is pretty occupied. Therefore, I plan to arrange to volunteer on the weekends. Leaving a two week “leeway” in case I have difficulty landing a “job,” I would have approximately six or seven weekends open over March, April and May (given prior commitments to the show and track meets) to volunteer; my 30 hours could be reasonably accomplished if I can work five hours each weekend. I know I would be able to handle this amount of time as I have worked similar or longer schedules at my past summer lifeguarding job. The only resources I would need are a car for transportation (which I do have rather open access to on the weekends) and my own two hands—in short, I am ready and cannot wait to start!

As I mentioned earlier, my proposed research topic is the impact of running on bone health. Since January of my sophomore year I have dealt with recurrent stress fractures and shin splints, along with some of my fellow female teammates. This anomaly has sparked a passionate interest in me, and the closer I get to answering the inevitable question of the sidelined—Why?—the more satisfied I will be. Hence, my essential question addresses why fractures are prevalent in high school female track athletes. Generally, my prior experiences with this topic include dealing with my own injuries as well as being a supportive friend for my teammates.

Going back to why I want to study medicine in the first place, I hope that my research investigation will help make a difference in the lives of girls like my teammates and I. To help track girls understand why they are more at risk and what they can do to prevent dreaded injuries. To help them stay healthy, happy, and accomplished, and not go through what some of my teammates and I have gone through.

To help fuel this constructive research, I plan to contact my physical therapist and orthopedist, from whom I already have phone numbers due to my past meetings with them. Personal accounts and statistics on the cases they've treated (how many girls with stress fractures they've worked with, the causes of their injuries etc.), I believe, would be a great way to get a first-hand perspective on the issue.

So...that's it! At the moment I am just on the starting line, but I hope and plan to finish with stride.